U.S. Department
of Transportation

**Federal Aviation
Administration**

TAKE OFF FOR OPPORTUNITIES

Student Information Guide

Printed by the
Federal Aviation Administration
in Cooperation With
General Aviation Manufacturers Association

GENERAL AVIATION: INTEGRAL PART OF THE NATION'S AIR TRANSPORTATION SYSTEM

General Aviation is all flying except the military and the airlines, It is one of the world's largest people carriers, boarding 110 million intercity passengers annually in the U.S. alone! The U.S. general aviation fleet of 220,000 aircraft flies an estimated 40 million hours each year and can serve all of the nation's 15,000 airports. (By comparison, the airlines serve 300 of those airports with a fleet of 2,600 aircraft.)

General aviation influences nearly every aspect of American life, and touches people in many different ways. It flies business people, and moves Americans everywhere. It delivers mail, checks and other cargo, fights fires, carries patients, manages cattle, plants and fertilizes crops, performs aerial mapping and pipeline patrol.

General aviation accomplishes these tasks while using only 7.5 percent of all fuel used in aviation, or less than one percent of the fuel consumed in all forms of transportation.

Thus, general aviation is an industry that affects our lives, our economy, our growth and our future. It is an integral part of our national transportation system.

INTRODUCTION

Imagine a job that pays well, provides you with growth potential and unparalleled opportunities for advancement, gives you an opportunity to work almost anywhere in the country, enables you to pick your specialization or generalization, and involves the latest in high tech machinery and systems. If a position like that interests you and you're willing to take off for opportunities, the world of aviation may provide just the career you're looking for.

DID YOU KNOW that general aviation, all flying except the military and the airlines, is the fastest growing segment of our national air transportation system? DID YOU KNOW that there are over 220,000 airplanes in the general aviation fleet and the number is expected to grow to over 300,000 in the 1990's? DID YOU KNOW that general aviation dominates flying, that 84 percent of all hours flown are logged in general aviation airplanes (that's 61 percent of all air miles), that 96 percent of all pilots are part of general aviation and they fly 99 percent of all civil airplanes?

And DID YOU KNOW that can mean a bright future for you? You can be part of the team that keeps general aviation airborne. With training as an Airframe and Powerplant Technician, an engineer, a pilot, or an avionics technician, you can be eligible for one of the 70,000 jobs opening in general aviation in the next decade.

AIRFRAME AND POWER PLANT (A&P) TECHNICIAN

An Airframe and Powerplant technician, often called an A&P, keeps airplanes in flying condition. He or she is licensed to work on any part of an aircraft's engines, airframe and systems.

Depending on the type of work they do, aircraft technicians can work in hangars, on the flight line, or in repair shops . . or a combination of the three. They can use hand and power tools and test equipment. And they work for general aviation, for the airlines, and for the military,

General aviation A&Ps work at independent repair stations or in instrument shops located at or near most of the nation's 15,000 airports. They work at airports for corporations which own business aircraft, air taxi operators, cropdusters, aircraft manufacturers and the Federal Aviation Administration. The scheduled airlines employ mechanics at large airline terminals and at overhaul bases which are concentrated at major terminal areas such as New York, Los Angeles, Atlanta, San Francisco, Chicago and Denver. The military services employ aircraft technicians to work on military aircraft at military installations around the world.

What kind of wages and benefits can you expect as an A&P? That depends on the kind of work you do, the amount of experience you have, and where you're located. (For current salary levels refer to your counselor% occupational handbook.)

Paid holidays, sick leave, paid vacations, insurance (health and life), employee suggestion plans with cash awards, and retirement plans and pensions are offered by both general aviation and the airlines.

To be eligible for a technician certificate, a person must be at least 18 years old, be able to read, write, speak and understand English, and must have passed FAA written, oral and practical exams on aircraft and engines.

There are several ways to become an A&P, A person can begin work as an apprentice, learning on the job. This type of training requires more time to earn an A&P license, and earning power remains at a lower rate over a longer period of time. Or, a person can take an aircraft maintenance course at an FAA certificated private or public technical school. The training period is shorter than on-the-job training (usually a 21- to 24-month curriculum) and earnings upon course completion are higher. And, the graduate of such a course is qualified to take the FAA exams when the course is finished. Or, a person can receive training while in military service. With some additional study, she or he can qualify for a civilian job when military service is completed.

A high school diploma is a prerequisite for attending technical school or a college offering A&P training. While in high school, you should take a course of study in math, physics, chemistry, English and aerospace education because an aircraft technician must understand many physical principles involved in the operation of an aircraft and its systems. The ability to read maintenance manuals and air regulations and to maintain aircraft logs and records is also important. And, the aircraft technician is expected to continue his or her education while on the job in order to keep up with continuing technical improvement to aircraft and aircraft systems.

The job outlook for aviation maintenance personnel is very good. Currently, it is estimated that there will be between 7,000 and 10,000 openings for aircraft maintenance technicians each year over the next decade. The aerospace aircraft industry has also joined in the demand for A&Ps. Job descriptions in aerospace aircraft facilities show that a technician with A&P training is considered qualified for more than 30 different jobs. Other nonaviation industries, such as heating and air conditioning, automotive, railroad, energy, business machines and appliance repair find that A&P-trained technicians are well suited to their requirements, too. And they are willing to pay for those skills.

So, if you have an interest in aviation, an above average mechnical ability, a desire to work with your hands and with tools, an appreciation of the importance of doing a job carefully and thoroughly, and a desire to continue to learn throughout your career, becoming an Airframe and Powerplant technician may be just the opportunity you're looking for,

ENGINEERING

In aviation, engineers are the concept people. They come up with ideas for new products, ideas on how to improve old products, or solutions to problems arising from the use of those products.*

With the ever-increasing complexity of modern aircraft, and with the growth of the general aviation fleet, engineers will be in greater and greater demand. Chances are, if you become an engineer, there will be a place for you in general aviation. Why? Because aircraft manufacturers hire a wide range and variety of engineers.** Manufacturers design and build airplanes so manufacturers need many kinds of specialists.

* Engineering is the application of scientific principals to practical ends as in the design, construction, and operation of efficient and economical structures, equipment and systems. And an engineer is a person trained in, skilled at, or professionally engaged in a branch of engineering.

** Kinds of engineers employed in general aviation: aerodynamics, aeronautical, dynamics, structures, structural test, functional test, materials and process, manufacturing support, industrial, plant and civil.

Starting salaries are excellent, with benefits similar to those of an A&P. And the money escalates rapidly as you grow in experience.

The long-term engineering job outlook is very good. A recent survey showed that 320,000 engineers will leave the workforce during the next decade due to retirement, career change or death. That number is equivalent to 32,000 engineers annually. With our increasingly technological society, and a declining birth rate, the competition for engineers will become even more intense.* It's definitely a career for the future, and the future is now.

* The Department of Labor estimates that 17,000 entry level engineering jobs went unfilled in 1980, even though 52,000 accredited engineers were graduated in 1979. Evidence of the scope of the engineering shortage is reflected in the fact that even though engineering students received only 7 percent of all degrees awarded in 1980, they got 63 percent of all job offers.

AVIONICS (AVIATION ELECTRONICS) TECHNICIAN

An avionics technician is a person qualified by training, skill and experience to" inspect, calibrate, repair, overhaul, modify and install airborne communications and navigation radios and weather radar equipment. Such people are capable of removing, repairing and replacing avionics and electronics equipment in an aircraft.

Most people who work on avionics equipment work for an FAA-certificated repair station, After achieving certain experience levels, an avionics technician is eligible to become an FAA-certificated repairman@ For some types of work, an FCC General Radio Telephone Operator License may be required.

A strong math, electrical and electronics background is important for avionics work. In high school you should study math, physics, chemistry and electronics. After high school, you should pursue training in eletronic technology, digital and analog circuitry, and receivers and transmitters. And you should combine some work experience with academic training from a technical school.

As an avionics technician you can expect to earn a good living. Benefits are similar to those of an A&P technician.

The job outlook for avionics technicians is tremendous. A substantial shortage of qualified personnel is a virtual certainty in this field in the coming years. Demand for avionics skills is soaring with increasingly sophisticated electronic systems carried by modern aircraft. Avionics made up just 10 percent of the systems in older aircraft. Today, avionics account for 20 percent and even 30 percent of total systems. That means the need for avionics specialists is increasing . .. . rapidly. (For example, the Spartan School of Aeronautics in Oklahoma received between 12 and 13 job offers for each graduate in 1979.)

PILOT

You can go all the way by air to almost anywhere in a general aviation airplane. That's the single best reason for most people to become a pilot. A pilot's license opens up a new range of travel options'. You decide when to go, how to go and when to return. You make your own schedule . . . and go places and do things you could not do otherwise.

Piloting an airplane yourself dramatically expands the number of direct destinations you can reach by air -- from about 300 airports served by airlines to more than 15,000 airports open to the pilot.

Business flying represents the largest category of general aviation. Businesses use general aviation aircraft to save time transporting their people, products, supplies and parts to keep production lines moving. The vast majority of general aviation business flights is between communities that lack adequate airline service. Business flying in general has the flexibility to be at the right place at the right time, and the exceptional utility to perform where others can't.

While business planes once were used only by top company officials, they now transport a wide range of employees and customers . . . managers, engineers, salesmen, accountants and many other specialists who are constantly on the move, managing the diverse, widespread and complex organizations and projects of modern business.

By using the right airplane for the right purpose, and by recognizing its advantages in speed, mobility, flexibility, convenience and safety, more and more companies are broadening their scope of operations in a more economical, efficient and profitable manner.

The effective use of a business plane, as a key tool in a firm's operations, is really what business flying is all about. And if you can bring a pilot's license to your job, you can add to your worth as a valuable company asset.

Additionally, one of every four airline pilots in the U. S. comes directly from the ranks of general aviation. And most of those who switched from military to airline flying got their start in general aviation. General aviation training, is, in effect, a manpower tool for the future.

Becoming a pilot is a fascinating experience, but not particularly difficult. It can be learned easily by practically anyone who is willing to invest a relatively modest amount of time and effort. The basic requirements are common sense and a willingness to stay within the boundaries of both flight regulations and your own flying ability.

There are two aspects involved in becoming a pilot. First, you learn to fly by actually handling the controls of the airplane yourself. The other part of your training takes place on the ground where you cover flight planning, navigation, radio procedures, flight rules and regulations and weather. When you have acquired all this knowledge and practiced the skills involved in controlling an airplane, you will be ready for your private license, which officially recognizes that you are prepared to be a safe, competent pilot.

Government regulations say you must pass an FAA written exam and a simple medical exam. Two regulations govern the minimum amount of flight training hours you must have in order to qualify for a private pilot's license. One requires 35 hours, the other 40 hours, depending on the kind of flight school you attend. In both cases, the hours are divided into dual (instruction) time and solo practice, night flying, instrument flying and cross-country experience, You must be 16 for a student certificate and 17 for a private license (which entitles you to carry passengers); there is no maximum age.

Statistics show the average person will complete the requirements in four to six months.

Becoming a licensed private pilot is relatively inexpensive, compared to the costs of training in other business skills. Prorated over a lifetime, it is one of the biggest bargains you'll ever find. And when you consider the returns in travel and business opportunities, the cost of becoming a pilot is not a cost at all, but rather a solid investment in your future. You'll probably spend less than you would for a semester of college, professional school, or vocational training. There are, of course, variations in cost depending on where you live, These variations are due to such factors as fuel costs, insurance, etc.

You don't have to own an airplane to fly. A large part of general aviation flying is done in airplanes pilots rent at their local airport, Rental fees are normally computed on the basis of an hour of actual flying time. The fee normally covers everything including fuel, oil and insurance on the airplane. Other methods of flying without buying are flying club memberships and aircraft leasing.

* U. S. GOVERNMENT PRINTING OFFICE 1984 814/26774